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VARIATIONS IN STUDY STANDARDS

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ACADEMIC STANDARDS IN THEORY AND IN FACT

Workers in the several fields of education speak of academic standards as if these were something fixed and well defined. The primary teacher affirms with confidence that A is below grade in beginning reading. With equal assurance the grammar-grade teacher declares that B is a failure in sixth-grade arithmetic. So accustomed are teachers to pronounce on the fitness or lack of fitness of pupils for advancement that we have come to assume that there exists among teachers a body of clear ideas of what the achievements of pupils should be before they are to be passed in a given study. If, however, the results of a survey of the failures by studies in a city school system of size can be taken as symptomatic, it can be affirmed with some assurance that we have no academic standards in the sense that our ideas of academic achievements are well defined and that the same standards of achievement are accepted and held by any considerable number of teachers. Whatever academic standards we have seemingly vary, even within the same system, with the school, the study, the study-grade, and the teacher. In a word, talk about academic standards as if these were well defined and generally accepted is educational cant. Such standards in all probability do not exist. What we have and what we use to measure the achievements of children and to judge of their fitness or lack of fitness to pass are more than likely the opinions and bias of particular teachers.

These assumptions are based on a study of the failures by studies and grades in the elementary schools of Cleveland for the fall term of 1910. A partial report of this study is here submitted.

VARIATIONS IN PERCENTAGE OF FAILURES BY STUDIES AND GRADES

Table I gives by subjects and grades for the fall term of 1910 for all elementary schools of Cleveland the percentage of failures and the minutes per week allotted.

TABLE I

SUBJECT	FIRST GRADE		SECOND GRADE		THIRD GRADE		FOURTH GRADE	
	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week
Reading.....	17.80	500	12.89	500	11.26	440	7.81	310
Spelling.....	3.74	75	15.06	100	9.97	125	6.21	100
Language and gram- mar.....	11.16	125	13.51	150	17.50	125	15.85	165
Arithmetic.....	9.69	60	16.54	315	21.47	225	19.70	240
History.....					3.63	30	24.24	40
Geography.....					3.54	45	25.11	160

SUBJECT	FIFTH GRADE		SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week	Percent- age of Failures	Minutes per Week
Reading.....	5.86	255	5.16	215	3.54	240	2.51	240
Spelling.....	5.21	80	3.67	75	2.19	75	1.24	75
Language and gram- mar.....	16.32	190	21.49	190	24.90	200	25.82	200
Arithmetic.....	28.18	225	37.03	245	32.07	225	23.44	250
History.....	9.02	40	12.76	80	25.03	135	17.30	135
Geography.....	22.78	200	17.68	200	21.03	90	13.92	90

It will be observed that the percentage of failures in the above subjects varies with the grade. The percentage of failures ranges in:

Reading, from 17.80 per cent in the first grade to 2.51 per cent in the eighth grade.

Spelling, from 15.06 per cent in the second grade to 1.24 per cent in the eighth grade.

Language and grammar, from 25.82 per cent in the eighth grade to 11.16 per cent in the first grade.

Arithmetic, from 37.03 per cent in the sixth grade to 9.69 per cent in the first grade.

History, from 25.03 per cent in the seventh grade to 3.63 per cent in the third grade.

Geography, from 25.11 per cent in the 4th grade to 3.54 per cent in the third grade.

A part at least of the variation from grade to grade in the percentage of failures in a given subject may readily be accounted for. For example, the high percentage of failures (17.80) in first-grade reading is doubtless due somewhat to the difficulties of the subject for beginners and to the importance placed on beginning reading. Again, the difference between the percentage of failures in third- and fourth-grade geography (3.54 and 25.11 per cent respectively) results at least partially from the difference between the emphasis placed on this subject in these two grades and the difference in the subject-matter taught, whereas the difference between the percentage of failures in sixth- and eighth-grade geography (17.68 and 13.92 respectively) may be due to differences in the ability of the children instructed. Similarly, the high percentage of failures in sixth-grade arithmetic (37.03 per cent) might be due to overloading the curriculum in this study in this grade. Finally, the difference between the percentage of failures in any two grades might be due to differences in methods, hence in the efficiency of the teachers in the respective grades. In a word, such variations in the percentage of failures in different grades of the same subject might exist even though standards of achievement were well defined and uniform, and these variations might be due to the inherent difficulties encountered by children in taking up a subject for the first time, to the differences between the emphasis placed on the same subject in different grades, to the differences between the requirements of the course of study in different grades, and to the differences in the abilities of the children instructed and the efficiency of teachers.

VARIATIONS IN STUDY STANDARDS BY SCHOOLS

These explanations of the variations in the percentage of failures in the several grades of the same subject lose their weight to a considerable extent if the percentage of failures in the same grade and subject in different schools are considered.

READING

Table II gives the several percentages of failures in sixth-grade reading and the number of schools failing a given percentage of pupils.

TABLE II

Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools
0	26	5	4	10	2	16	1
1	10	6	5	11	3	18	1
2*	7	7	1	12	3	21	1
3	7	8	2	13	1	26	1
4	5	9	3	15	2	29	1

* Median percentage.

The percentage of failures in sixth-grade reading ranges, it will be noted, from 0 to 29 per cent. Twenty-six elementary schools were, however, able to pass all of their pupils, while one school was constrained to fail 29 out of each hundred. All of these schools were following the same course of study and had the same textbooks; hence there were but two variable elements: pupils and teachers. It is scarcely probable that the differences in the percentage of failures can be accounted for by the differences in the abilities of the children enrolled in these several schools and in the efficiency of the teachers in question. The more reasonable explanation of at least a good part of this variation is that standards of achievement in sixth-grade reading vary almost with the school, and that, since in most of these schools there are but one or two teachers, standards of achievement vary with the teacher. Similar variations in the percentage of failures in the same grade in other subjects point to the same conclusion.

HISTORY

Table III gives the several percentages of failures in sixth-grade history and the number of schools failing a given percentage of pupils.

TABLE III

Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools
0	11	9	4	17	1	32	1
1	3	10*	5	18	1	33	1
2	7	11	3	19	3	35	2
3	2	12	2	20	3	38	2
5	4	13	5	22	1	45	1
6	3	14	3	24	1	50	1
7	3	15	4	25	1	61	1
8	1	16	4	27	2		

* Median percentage.

ARITHMETIC

Table IV gives the several percentages of failures in sixth-grade arithmetic and the number of schools failing a given percentage of pupils.

TABLE IV

Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools	Percentage of Failures	Number of Schools
0	5	23	2	38	2	57	2
5	2	24	1	40	2	58	1
9	2	26	2	41	3	59	1
11	1	25	1	44	3	61	1
12	2	29	2	45	1	62	2
13	1	30	2	47	1	63	2
15	2	32	4	48	1	65	2
17	1	33	3	49	1	69	1
19	2	34*	1	50	4	73	1
20	1	35	3	54	1	75	1
21	2	36	2	55	1	78	2
22	2	37	2	56	1	80	1

* Median percentage.

That the percentage of failures in the several schools of any modern system should range in the sixth grade in a subject like arithmetic from 0 to 80 per cent is almost unbelievable. Equally astounding is the relatively uniform distribution of the several schools at the different points in the scale of failures. These data on failures in sixth-grade arithmetic indicate, therefore, even with greater clearness than the foregoing data on reading and history, that standards of achievement vary with the school and teacher.

VARIATION IN STUDY STANDARDS BY SUBJECTS

Not only do study standards vary with the school, but they seem also to vary with the particular branch. For example, of the 86 elementary schools in question, only 20 had in each of the following sixth-grade subjects, reading, spelling, language and grammar, history, and geography, a percentage of failures lower than the sixth-grade average in all schools for the respective studies, and only 8 had a percentage of failures higher than the average for the respective branches. In a word, only 28 out of 86 schools had anything like a uniform and constant standard of achievement for the above-mentioned studies.

If the sixth-grade averages for all schools of the per cent of failures in the respective studies in question are made the basis of grouping, the variation in study standards by studies becomes even clearer. For example, of the 55 schools failing below the city average in sixth-grade reading, only 40 also failed below the sixth-grade average in spelling. Of the 40 schools failing below the sixth-grade average in reading and spelling respectively, only 33 also failed below that average in language. Of the 33 schools failing below the sixth-grade average in reading, spelling, and language respectively, only 27 also failed below this average in arithmetic. Of the 27 schools failing below the sixth-grade average in reading, spelling, language, and arithmetic respectively, only 21 also failed below this average in history; and of the 21 schools failing below the sixth-grade average in reading, spelling, language, arithmetic, and history respectively, only 20 also failed below this average in geography.

Conversely, of the 31 schools failing above the average in sixth-grade reading, only 20 also failed above the sixth-grade average in spelling. Of the 20 schools failing above the sixth-grade average in reading and spelling respectively, only 14 also failed above this average in language. Of the 14 schools failing above the sixth-grade average in reading, spelling, and language respectively, only 9 also failed above this average in arithmetic. Of the 9 schools failing above the sixth-grade average in reading, spelling, language, and arithmetic, only 8 also failed above this average in history and geography.

Similarly, of the 46 schools failing below the average in all schools in sixth-grade arithmetic, only 37 also failed below the sixth-grade average in reading. Of 37 schools failing below this average in arithmetic and reading respectively, only 28 also failed below the average in spelling. Of the 28 schools failing below the sixth-grade average in arithmetic, spelling, and language respectively, only 26 also failed below this average in language. Of the 26 schools failing below the sixth-grade average in arithmetic, reading, spelling, and language respectively, only 21 also failed below this average in history; and of the 21 schools failing below the sixth-grade average in arithmetic, reading, spelling, language,

and history respectively, only 20 also failed below this average in geography.

Conversely, of the 40 schools failing above the average in all schools in sixth-grade arithmetic, only 22 also failed above the average in sixth-grade reading. Of the 22 failing above the sixth-grade average in arithmetic and reading respectively, only 12 also failed above the average in spelling. Of the 12 schools failing above the average in arithmetic, reading, and spelling respectively, only 11 also failed above the average in language, and of the 11 schools failing above the average in arithmetic, reading, spelling, and language respectively, only 8 also failed above the average in history and geography.

Similar variations in study standards by subjects appear when the average percentage of failures in the other sixth-grade studies is made the basis of grouping and when the variations in the percentage of failures for the same studies in the other grades are considered.

In view of these variations in study standards by subjects, and since in the elementary schools of Cleveland there is as a rule but one teacher to the grade, there are strong indications that, in Cleveland at least, study standards not only vary with the branch, but vary with the teacher; that is, a given teacher may hold a high standard of achievement with respect to certain branches and a lower standard of achievement with respect to other studies of the same grade.

VARIATION OF STUDY STANDARDS BY STUDY-GRADES

While it might be admitted that study standards vary with the branch, it might not be admitted that standards of achievement vary in the same study with the study-grade; that is, a different standard of achievement held for fifth- and sixth-grade language or arithmetic, or for seventh- and eighth-grade reading, etc.

In comparing standards of achievement in the same study in different grades, there are at least four factors which may vitiate any conclusions made on the basis of such comparison: differences in pupils, in teachers, in the methods of instruction, and in emphasis. Yet the facts at hand are symptomatic of such variations. For

example, 190 minutes per week were assigned in the elementary schools of Cleveland in the fall term of 1910 to fifth- and sixth-grade language, but the average percentage of failures was 16.32 and 21.49 per cent respectively. Similarly, the percentage of failures in fifth- and sixth-grade arithmetic, with a time allotment of 225 and 245 minutes, were 28.18 and 37.03 per cent respectively. Under similar time conditions, 200 minutes per week, the failures in fifth- and sixth-grade geography were 22.78 and 17.68 per cent, and in seventh- and eighth-grade, with 90 minutes per week, 21.03 and 13.92 per cent respectively.

Not only do the differences in the percentage of failures in different grades of the same subject, under similar time allotments, suggest a variation in study standards by study-grades, but there are also indications of this in the lack of uniformity in different grades in the number of schools failing a given percentage of pupils in the same subject. Take, for example, arithmetic in the fifth

TABLE V

PERCENTAGE OF FAILURES	NUMBER OF SCHOOLS FAILING		PERCENTAGE OF FAILURES	NUMBER OF SCHOOLS FAILING		PERCENTAGE OF FAILURES	NUMBER OF SCHOOLS FAILING	
	Fifth Grade	Sixth Grade		Fifth Grade	Sixth Grade		Fifth Grade	Sixth Grade
0.....	2	5	23.....	1	2	46.....	1	0
1.....	2	0	24.....	0	1	47.....	0	1
2.....	1	0	25.....	1	0	48.....	1	1
3.....	1	0	26*	2	2	49.....	0	1
4.....	1	0	27.....	3	0	50.....	2	4
5.....	0	2	28.....	4	1	51.....	2	0
7.....	3	0	29.....	2	2	55.....	2	1
8.....	1	0	30.....	0	2	56.....	0	1
9.....	1	2	31.....	1	0	57.....	0	2
10.....	2	0	32.....	4	4	58.....	1	1
11.....	2	1	33.....	3	3	59.....	0	1
12.....	0	2	34†	0	1	61.....	0	1
13.....	3	1	35.....	1	3	62.....	1	2
14.....	1	0	36.....	1	2	63.....	1	2
15.....	2	2	37.....	2	2	64.....	1	0
16.....	2	0	38.....	3	2	65.....	0	2
17.....	2	1	39.....	1	0	69.....	0	1
18.....	3	0	40.....	3	2	73.....	0	1
19.....	2	2	41.....	0	3	75.....	0	1
20.....	1	1	42.....	3	0	78.....	0	2
21.....	4	2	44.....	0	3	80.....	0	1
22.....	2	2	45.....	1	1			

* Median percentage for fifth grade.

† Median percentage for sixth grade.

and sixth grades when the time allotment is 225 and 245 minutes per week respectively.

Table V gives the percentage of failures in fifth- and sixth-grade arithmetic and the number of schools failing a given percentage of pupils in each grade.

The range in the percentage of failures in the fifth grade, it will be noted, is from 0 to 64 per cent, but in the sixth grade from 0 to 80 per cent. Again, the median percentage of failures in the fifth grade is 26, whereas in the sixth it is 34 per cent. Moreover, there is no one percentage of failures distinctively common to the two grades. In only 7 cases out of a possible 65 is there a common number of schools failing a given percentage of pupils. While these differences are not conclusive, they at least point toward the fact that the standards of achievement are higher in the sixth- than in fifth-grade arithmetic—in a word, that study-standards vary with the study-grade.

CONCLUSIONS

The foregoing facts warrant, we believe, the tentative conclusion that within a given school system study-standards vary with the school, the subject, the study-grade, and the teacher. These facts also show the need of collecting such data if school officials are to know what is going on in the schools. They show, besides, the need of making such data the starting-point at least of determining to what particular factor or factors such variations are due, whether due, either singly or collectively, to differences in emphasis, difficulties in materials, overloading, differences in methods and teachers, differences in the abilities of children, or to lack of clear and well-defined standards of achievement. They make clear what a go-as-you-please business teaching is, and how much the advancement of a pupil depends on the teacher he happens to have and the school he happens to attend. Finally, they reveal the need of developing objective standards of achievements in each of the several subjects and grades of the elementary schools.